

Fig.1

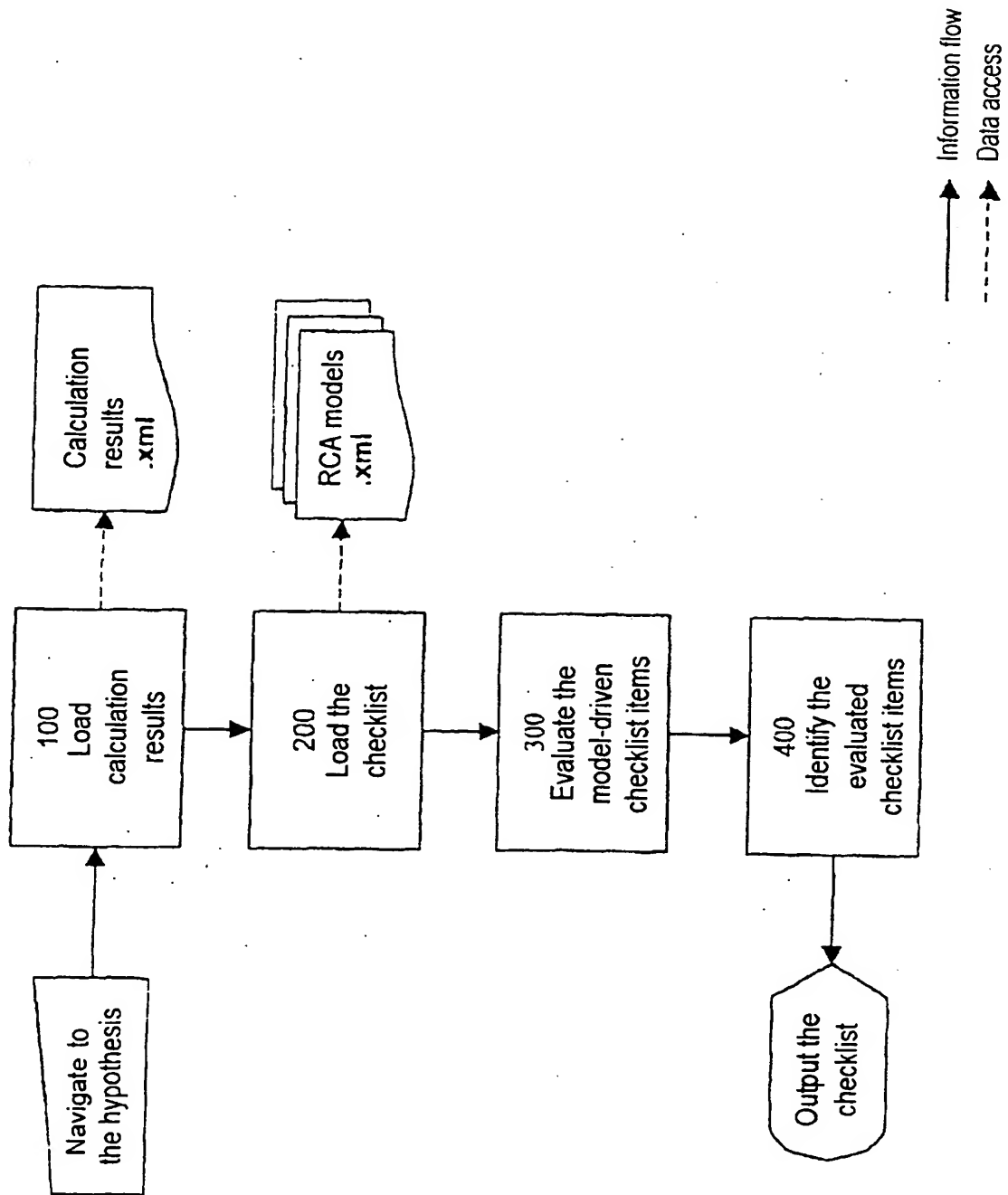


Fig. 2

$$\left\{ \begin{aligned}
 \frac{dV}{dt} &= F_i - F_0 + F_0 f_1(t) \\
 \frac{dT}{dt} &= \frac{F_i}{V} (T_i - T) - \frac{k_0}{\rho_0 C_p} \Delta H e^{\frac{E}{RT}} C_A - \frac{UA(T - T_{j,0})}{\rho_0 C_p V} + G(T, C_A) f_1(t) \\
 \frac{dC_A}{dt} &= \frac{F_i}{V} (C_{A,i} - C_A) - k_0 e^{\frac{E}{RT}} C_A + \frac{F_0}{V} f_2(t) \\
 \frac{dT_{j,0}}{dt} &= \frac{F_j}{V_j} (T_{c,i} - T_{j,0}) + \frac{UA}{\rho_j V_j C_j} (T - T_{j,0})
 \end{aligned} \right\} \text{ where }$$

$$G(T, C_A) = \left[\frac{k_0}{\rho_0 C_p} \Delta H e^{\frac{E}{RT}} C_A + \frac{UA(T - T_{j,0})}{\rho_0 C_p V} \right]$$

Fig. 3

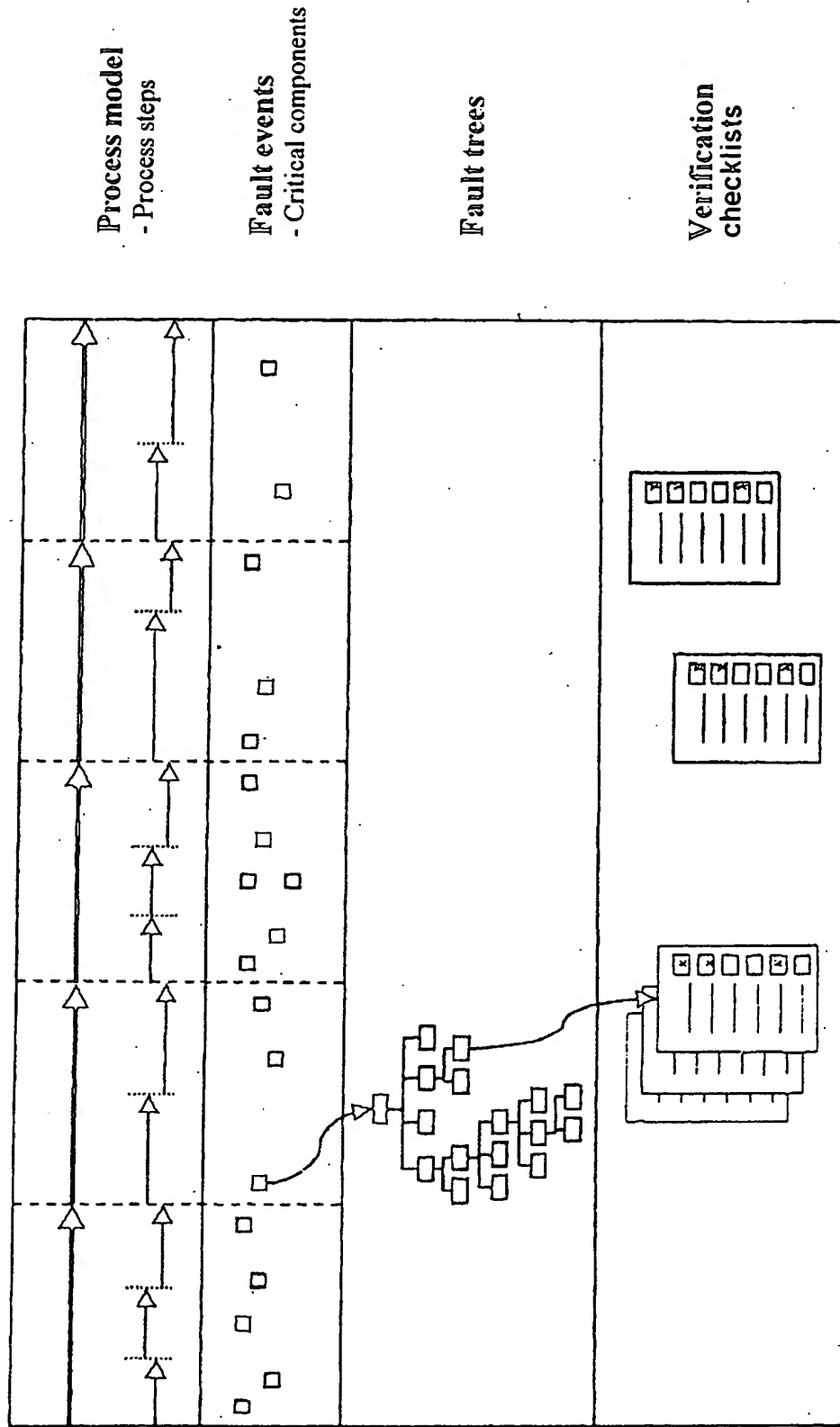


Fig. 4

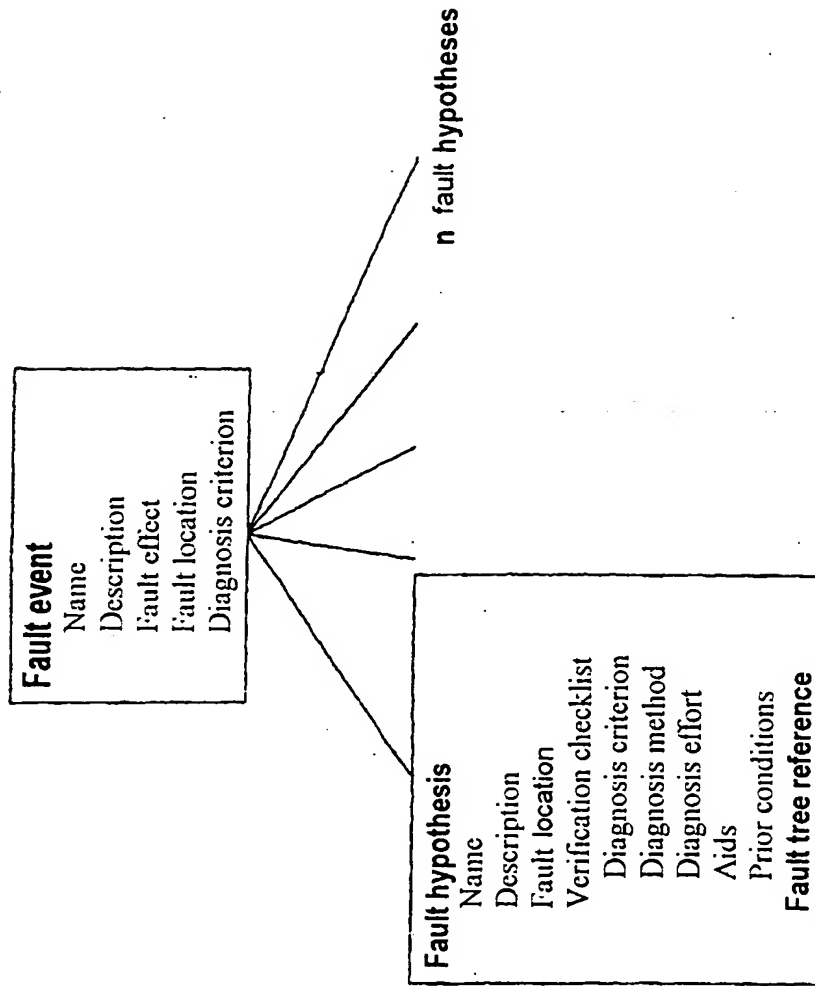


Fig. 5

Fault hypothesis – Power supply too high	
Description	An overpressure in the reactor can be caused by an excessively high power supply.
Localization	Continuously stirring reactor XY
<u>Verification checklist</u>	
Valve not open?	
	Diagnosis method: ...
	Diagnosis effort: low
Temperature measurement fault?	
	Diagnosis method: physical model
	Diagnosis effort: automatically verified
Incorrect operating instructions?	
	Diagnosis method: ...
	Diagnosis effort: average
Leakage to the cooling casing?	
	Diagnosis method: physical model
	Diagnosis effort: automatically verified
Fault tree reference	Incorrect operating instructions

Fig. 6

Fault hypothesis – Power supply too high	
Description	An overpressure in the reactor can be caused by an excessively high power supply.
Localization	Continuously stirring reactor XY
<u>Verification checklist</u>	
Valve not open?	
Diagnosis method: ...	
Diagnosis effort: low	
<i>Temperature measurement fault excluded!</i>	
Diagnosis method: physical model	
Diagnosis effort: automatically verified	
Incorrect operating instructions?	
Diagnosis method: ...	
Diagnosis effort: average	
Leakage to the cooling casing!	
Diagnosis method: physical model	
Diagnosis effort: automatically verified	
Fault tree reference	
	Incorrect operating instructions

Fig. 7